

ADDENDA

**ANSI/ASHRAE/IES Addendum cc to
ANSI/ASHRAE/IES Standard 90.1-2019**

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on July 20, 2022; by the ASHRAE Board of Directors on August 15, 2022; by the Illuminating Engineering Society on September 8, 2022; and by the American National Standards Institute on September 9, 2022.

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ISSN 1041-2336



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FOREWORD

Addendum cc increases the prescriptive on-site renewable energy requirement added in Section 10.5.1.1 by previously published Addendum by. An updated analysis demonstrated that the capacity requirement can be increased while passing the ASHRAE scalar assessment for cost effectiveness without tax incentives or subsidies and also considering roof space competition and self-utilization of the renewable energy within the building. In the PNNL prototype buildings, using a scalar value of 20 while also limiting electricity export back into the grid of no more than 0.5% of the total annual building electricity consumption actually justifies capacity values of at least the following values:

- *1.5 W/ft² in A-2 and M occupancy groups*
- *0.75 W/ft² in R, I, and E occupancy groups*
- *0.75 W/ft² in B occupancy groups with IT equipment*
- *0.50 W/ft² in other B occupancy groups including smaller offices*
- *0.50 W/ft² in S occupancy groups*
- *0.68 W/ft² in all other groups*

Therefore, a capacity requirement of 0.50 W/ft² was selected to be conservative. This would require an equivalent area of photovoltaics less than 3% to 16% of roof area across the different building prototypes, although the specific type of on-site renewable energy resource and placement is left up to the designer or building owner and can also be traded off in the performance path. Additionally, the existing exceptions are maintained.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striking through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum cc to Standard 90.1-2019

Modify Section 10.5.1.1 as shown (I-P and SI).

10.5.1.1 On-Site Renewable Energy. The building site shall have equipment for *on-site renewable energy* with a rated capacity of not less than ~~0.25–0.50~~ 0.50 W/ft² or ~~0.85–1.7~~ 1.7 Btu/ ft² (~~2.7–5.4~~ 5.4 W/m²) multiplied by the sum of the *gross conditioned floor area* for all floors up to the three (3) largest floors.

Exceptions to 10.5.1.1:

1. Any *building* located where an unshaded flat plate collector oriented toward the equator and tilted at an angle from horizontal equal to the latitude receives an annual daily average incident solar radiation less than 3.5 kWh/m²·day (1.1 kBtu/ft²·day).
2. Any *building* where more than 80% of the *roof area* is covered by any combination of *equipment* other than for *on-site renewable energy systems*, planters, vegetated space, *skylights*, or occupied *roof deck*.
3. Any *building* where more than 50% of *roof area* is shaded from direct-beam sunlight by natural objects or by structures that are not part of the *building* for more than 2500 annual hours between 8:00 a.m. and 4:00 p.m.
4. New construction or *additions* in which the sum of the *gross conditioned floor area* of the three largest floors of the new construction or *addition* is less than 10,000 ft² (1000 m²).
5. *Alterations*.

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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